CLAIMS

1. Compositions comprising 1,1,1,3,3-pentafluorobutane and more than 5% by weight of at least one non-flammable fluoro compound selected from hydrofluorocarbons comprising more than 3 carbon atoms, perfluorocarbons, fluoroamines and fluoro ethers.

2. Compositions comprising 1,1,1,3,3-pentafluorobutane, more than 5% by weight of at least one non-flammable fluoro compound and at least one non-fluoro organic solvent.

3. Compositions according to Claim 2, in which the non-fluoro organic solvent is selected from hydrocarbons, halohydrocarbons, aliphatic, alicyclic or aromatic esters or ketones, and alcohols or ethers.

4. Compositions according to Claim 2 or 3, in which the non-fluoro organic solvent is ethyl acetate, 1,2-dichloroethylene, methanol, ethanol, isopropanol or isobutanol.

5. Compositions according to any one of Claims 2 to 4, comprising 1,1,1,3,3-pentafluorobutane and a non-fluoro organic solvent in proportions in which they form an azeotrope or a pseudo-azeotrope.

6. Compositions according to any one of Claims 1 to 5, comprising a surfactant, preferably of imidazoline or alkylbenzenesulphonate type.

7. Compositions according to any one of Claims 1 to 6, in which the non-flammable fluoro compound is 2,3-dihydrodecafluoropentane (HFC-43-10mee), perfluorotriethylamine, perfluorobutyl methyl ether, perfluoropentane or perfluorohexane.

8. Compositions according to any one of Claims 1 to 7, comprising 1,1,1,3,3-pentafluorobutane and at least one perfluoro carbon in proportions in which they form an azeotrope or a pseudo-azeotrope.

9. Composition according to Claim 8, comprising an azeotropic or pseudo-azeotropic mixture consisting essentially of from 40 to 80% by weight of 1,1,1,3,3-pentafluorobutane and from 20 to 60% by weight of perfluorohexane, or comprising an azeotropic or pseudo-azeotropic mixture consisting essentially of from 13 to 50% by weight of 1,1,1,3,3-pentafluorobutane and from 50 to 87% by weight of perfluoropentane.

10. Use of the compositions according to any one of Claims 1 to 9, in applications as solvents, drying agents, degreasing solvents, toner-fixing agents, refrigerants or heat-exchange fluids.

11. Use according to Claim 10, as a product to replace CFC-11 (trichlorofluoromethane) or as a product to replace CFC-113 (1,1,2-trichloro-trifluoroethane).

Example 9

The process was performed as in Example 8, using a drying solution containing 40 parts by weight of HFC365mfc, 60 parts by weight of perfluorobutyl ether HFE-7100, 5 parts by weight of isobutanol and 2000 ppm of Imidazoline 18NH. After a total dipping time of 60 seconds, 19 of the 20 holes were free of water.

Example 10

The process was performed as in Example 8, using a drying solution containing 36.4 parts by weight of HFC365mfc, 54.5 parts by weight of perfluorobutyl ether HFE-7100, 9.1 parts by weight of isobutanol and 2500 ppm of isopropylammonium dodecylbenzenesulphonate. After a total dipping time of 60 seconds, all the holes were free of water.

CLAIMS

1. A composition comprising 1,1,1,3,3-pentafluorobutane and more than 5% by weight of at least one non-flammable fluoro compound presenting no flash point according to standard Iso 1523, selected from hydrofluorocarbons comprising at least 5 carbon atoms, perfluorocarbons, fluoroamines and fluoro ethers.

2. The composition according to Claim 1 comprising in addition at least one non-fluoro organic solvent.

3. The composition according to Claim 2, in which the non-fluoro organic solvent is selected from hydrocarbons, halohydrocarbons, aliphatic, alicyclic or aromatic esters or ketones, and alcohols or ethers.

4. The composition according to Claim 3, in which the non-fluoro organic solvent is ethyl acetate, 1,2-dichloroethylene, methanol, ethanol, isopropanol or isobutanol.

5. The composition according to Claim 2, comprising 1,1,1,3,3-pentafluorobutane and the non-fluoro organic solvent in proportions in which they form an azeotrope or a pseudo-azeotrope.

6. The composition according to Claim 1, comprising a surfactant, preferably of imidazoline or alkylbenzenesulphonate type.

7. The composition according to any one of Claims 1 to 6, in which the non-flammable fluoro compound is selected from 2,3-dihydrodecafluoropentane (HFC-43-10mee), perfluorotriethylamine, perfluorobutyl methyl ether, perfluoropentane and perfluorohexane.

8. The composition according to Claim 1, comprising 1,1,1,3,3-pentafluorobutane and at least one perfluorocarbon in proportions in which they form an azeotrope or a pseudo-azeotrope.

9. The composition according to Claim 8, comprising an azeotropic or pseudo-azeotropic mixture consisting essentially of from 40 to 80% by weight of 1,1,1,3,3-pentafluorobutane and from 20 to 60% by weight of perfluorohexane, or comprising an azeotropic or pseudo-azeotropic mixture consisting essentially of from 13 to 50% by weight of 1,1,1,3,3-pentafluorobutane and from 50 to 87% by weight of perfluoropentane.

10. A method selected from a method involving use of a solvent, a method for drying, a method for degreasing, a method for fixing a toner, a method for refrigerating, a method for exchanging heat, wherein a composition according to any one of Claims 1 to 4 is used.

11. The method according to Claim 10, wherein the composition is used as a product to replace a chlorofluorocarbon selected from CFC-11 (trichlorofluoromethane) and CFC-113 (1,1,2-trichlorotrifluoroethane).